

IN THE CLAIMS

364. (Previously presented) An efflux pump inhibitor compound selected from the group consisting of

Isopropyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate;
n-Butyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate;
Benzyl-1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-(t-butoxycarbonyl amino)-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate;
(R)-(+)-Ethoxycarbonylmethyl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate;
(S)-(-)-N-Methylpiperidin-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate;
(S)-(-)-N-Morpholinoethyl-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate;
(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-L-alaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride;
(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-D-leucyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride and
(RS)-(\pm)-9-Fluoro-6,7-dihydro-8-(4'-D-phenylalaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride.

365. (Previously presented) A composition comprising an efflux pump inhibitor compound according to claim 1, an antimicrobial agent and a pharmaceutically acceptable carrier.

366. (Previously presented) The composition of claim 365, wherein the antimicrobial agent is an antibacterial agent.

367. (Previously presented) The composition of claim 366, wherein the antimicrobial agent is a macrolide or a ketolide.

368. (Previously presented) The composition of claim 367, wherein the macrolide or ketolide is selected from the group consisting of erythromycin, clarithromycin, azithromycin, roxithromycin, rokitamycin, spiramycin, josamycin and

telithromycin,

369. (Previously presented) The composition of claim 365, wherein the antimicrobial agent is a fluoroquinolone.

370. (Previously presented) The composition of claim 369, wherein said fluoroquinolone is selected from the group consisting of ciprofloxacin, norfloxacin, levofloxacin, clinafloxacin, sitafloxacin, gatifloxacin, moxifloxacin, trovafloxacin, gemifloxacin and nadifloxacin.

371. (Previously presented) The composition of Claim 365, wherein the antimicrobial agent is selected from ciprofloxacin, levofloxacin, ofloxacin, gemifloxacin, nadifloxacin azithromycin and erythromycin.

372. (Previously presented) A composition according to claim 365, wherein the antimicrobial agent is levofloxacin.

373. (Previously presented) A composition according to claim 365, wherein the antimicrobial agent is azithromycin.

374. (Previously presented) A composition according to claim 365, wherein the antimicrobial agent is ciprofloxacin.

375. (Previously presented) A method for treating a microbial infection comprising administering an effective amount of an efflux pump inhibitor compound according to claim 364 and an antimicrobial agent to a patient in need thereof.

376. (Previously presented) The method according to claim 375 wherein the patient is a human or animal.

377. (Previously presented) The method according to claim 375 wherein the patient is a human.

378. (Previously presented) A method for suppressing growth of a microbe comprising administering an efflux pump inhibitor compound according to claim 364 and an antimicrobial agent in a concentration below the MIC of the microbe to a patient in need thereof.

379. (Previously presented) The method according to claim 378 wherein the patient is a human or animal.

380. (Previously presented) The method according to claim 378 wherein the patient is a human.

381. (Previously presented) A method for suppressing growth of a microbe comprising exposing the microbe to an efflux pump inhibitor compound according to

claim 364 and an antimicrobial agent in a concentration below the MIC of the microbe.

382. (Previously presented) The method according to claim 375 wherein the efflux pump is a Mef A or Mef E pump.

383. (Previously presented) The method according to claim 378 wherein the efflux pump is Mef A or Mef E pump.

384. (Previously presented) The method according to claim 375 wherein the efflux pump is selected from the group consisting of NorA, PmrA, QacA and QacB pump.

385. (Previously presented) The method according to claim 378 wherein the efflux pump is selected from the group consisting of NorA, PmrA, QacA and QacB pump.

386. (Previously presented) The method according to claim 375, wherein the microbial infection is caused by a microbe expressing an efflux pump is a Gram negative organism-bearing one or more MexAB-OprM, MexCD-OprJ, MexEF-OprM, MexXY-OprM, ARcrAB-TolC, AcrEF, MarA, SoxS, and Tet pumps.

387. (Previously presented) The method according to claim 378 wherein the microbe is a Gram negative organism-bearing one or more MexAB-OprM, MexCD-OprJ, MexEF-OprM, MexXY-OprM, ARcrAB-TolC, AcrEF, MarA, SoxS, and Tet pumps

388. (Previously presented) The method according to claim 375 wherein the microbial infection is caused by a bacterium.

389. (Previously presented) The method according to claim 378 wherein the microbe is a bacterium.

390. (Previously presented) The method according to claim 388, wherein said bacterium is selected from the group consisting of *Pseudomonas aeruginosa*, *Pseudomonas fluorescens*, *Pseudomonas acidovorans*, *Pseudomonas alcaligenes*, *Pseudomonas putida*, *Stenotrophomonas maltophilia*, *Burkholderia cepacia*, *Burkholderia pseudomallei*, *Aeromonas hydrophilia*, *Escherichia coli*, *Citrobacter freundii*, *Salmonella typhimurium*, *Salmonella enterica* Serovar *typhimurium*, *Salmonella typhi*, *Salmonella paratyphi*, *Salmonella enteritidis*, *Shigella dysenteriae*, *Shigella flexneri*, *Shigella sonnei*, *Enterobacter cloacae*, *Enterobacter aerogenes*, *Klebsiella pneumoniae*, *Klebsiella oxytoca*, *Serratia marcescens*, *Francisella tularensis*, *Morganella morganii*, *Proteus mirabilis*, *Proteus vulgaris*, *Providencia alcalifaciens*, *Providencia rettgeri*, *Providencia stuartii*, *Acinetobacter calcoaceticus*, *Acinetobacter haemolyticus*, *Yersinia enterocolitica*, *Yersinia pestis*, *Yersinia pseudotuberculosis*, *Yersinia intermedia*, *Bordetella pertussis*, *Bordetella parapertussis*, *Bordetella bronchiseptica*, *Haemophilus*

influenzae, *Haemophilus parainfluenzae*, *Haemophilus haemolyticus*, *Haemophilus parahaemolyticus*, *Haemophilus ducreyi*, *Pasteurella multocida*, *Pasteurella haemolytica*, *Branhamella catarrhalis*, *Helicobacter pylori*, *Campylobacter fetus*, *Campylobacter jejuni*, *Campylobacter coli*, *Borrelia burgdorferi*, *Vibrio cholerae*, *Vibrio parahaemolyticus*, *Legionella pneumophila*, *Listeria monocytogenes*, *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Gardnerella vaginalis*, *Bacteroides fragilis*, *Bacteroides distasonis*, *Bacteroides 3452A* homology group, *Bacteroides vulgatus*, *Bacteroides ovalus*, *Bacteroides thetaiotaomicron*, *Bacteroides uniformis*, *Bacteroides eggerthii*, *Bacteroides splanchnicus*, *Clostridium difficile*, *Mycobacterium tuberculosis*, *Mycobacterium avium*, *Mycobacterium intracellulare*, *Mycobacterium leprae*, *Corynebacterium diphtheriae*, *Corynebacterium ulcerans*, *Streptococcus pneumoniae*, *Streptococcus agalactiae*, *Streptococcus pyogenes*, *Enterococcus faecalis*, *Enterococcus faecium*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus saprophyticus*, *Staphylococcus intermedius*, *Staphylococcus hyicus* subsp. *hyicus*, *Staphylococcus haemolyticus*, *Staphylococcus hominis*, *Staphylococcus saccharolyticus*, and *Rickettsia prowazekii*.

391. (Previously presented) The method according to claim 389, wherein said bacterium is selected from the group consisting of *Pseudomonas aeruginosa*, *Pseudomonas fluorescens*, *Pseudomonas acidovorans*, *Pseudomonas alcaligenes*, *Pseudomonas putida*, *Stenotrophomonas maltophilia*, *Burkholderia cepacia*, *Burkholderia pseudomallei*, *Aeromonas hydrophila*, *Escherichia coli*, *Citrobacter freundii*, *Salmonella typhimurium*, *Salmonella enterica* Serovar *typhimurium*, *Salmonella typhi*, *Salmonella paratyphi*, *Salmonella enteritidis*, *Shigella dysenteriae*, *Shigella flexneri*, *Shigella sonnei*, *Enterobacter cloacae*, *Enterobacter aerogenes*, *Klebsiella pneumoniae*, *Klebsiella oxytoca*, *Serratia marcescens*, *Francisella tularensis*, *Morganella morganii*, *Proteus mirabilis*, *Proteus vulgaris*, *Providencia alcalifaciens*, *Providencia rettgeri*, *Providencia stuartii*, *Acinetobacter calcoaceticus*, *Acinetobacter haemolyticus*, *Yersinia enterocolitica*, *Yersinia pestis*, *Yersinia pseudotuberculosis*, *Yersinia intermedia*, *Bordetella pertussis*, *Bordetella parapertussis*, *Bordetella bronchiseptica*, *Haemophilus influenzae*, *Haemophilus parainfluenzae*, *Haemophilus haemolyticus*, *Haemophilus parahaemolyticus*, *Haemophilus ducreyi*, *Pasteurella multocida*, *Pasteurella haemolytica*, *Branhamella catarrhalis*, *Helicobacter pylori*, *Campylobacter fetus*, *Campylobacter jejuni*, *Campylobacter coli*, *Borrelia burgdorferi*, *Vibrio cholerae*, *Vibrio parahaemolyticus*, *Legionella pneumophila*, *Listeria monocytogenes*, *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Gardnerella vaginalis*, *Bacteroides fragilis*, *Bacteroides distasonis*, *Bacteroides 3452A* homology group, *Bacteroides vulgatus*, *Bacteroides ovalus*, *Bacteroides thetaiotaomicron*, *Bacteroides uniformis*, *Bacteroides eggerthii*, *Bacteroides splanchnicus*, *Clostridium difficile*, *Mycobacterium tuberculosis*, *Mycobacterium avium*, *Mycobacterium intracellulare*, *Mycobacterium leprae*, *Corynebacterium diphtheriae*, *Corynebacterium ulcerans*, *Streptococcus pneumoniae*, *Streptococcus agalactiae*, *Streptococcus pyogenes*, *Enterococcus faecalis*, *Enterococcus faecium*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, *Staphylococcus saprophyticus*, *Staphylococcus intermedius*, *Staphylococcus hyicus* subsp. *hyicus*, *Staphylococcus haemolyticus*,

Staphylococcus hominis, *Staphylococcus saccharolyticus*, and *Rickettsia prowazsekii*.

392. (Previously presented) The method according to claim 388, wherein the bacterium is selected from the group consisting of *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus aureus*.

393. (Previously presented) The method according to claim 389, wherein the bacterium is selected from the group consisting of *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Staphylococcus aureus*.

394. (Previously presented) The method according to claim 375, wherein said antimicrobial agent is selected from the group consisting of quinolone, tetracycline, beta-lactam, coumermycin, chloramphenicol, glycopeptide, aminoglycoside, macrolide, rifamycin, and oxazolidinone.

395. (Previously presented) The method according to claim 378, wherein said antimicrobial agent is selected from the group consisting of quinolone, tetracycline, beta-lactam, coumermycin, chloramphenicol, glycopeptide, aminoglycoside, macrolide, rifamycin, and oxazolidinone.

396. (New) A method for treating a microbial infection comprising administering an effective amount of an efflux pump inhibitor compound selected from the group consisting of

Isopropyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate;

n-Butyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate; and

Benzyl-1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-(t-butoxycarbonyl amino)-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate; and an antimicrobial agent to a patient in need thereof, wherein the efflux pump is a Mef A or Mef E pump.

397. (New) A method for suppressing growth of microbe comprising administering an efflux pump inhibitor compound selected from the group consisting of

Isopropyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate;
 n-Butyl 1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-amino-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate; and
 Benzyl-1-cyclopropyl-6-fluoro-8-methoxy-1,4-dihydro -7-(4'-(t-butoxycarbonyl amino)-3',3'-dimethyl-piperidin-1-yl)-4-oxo-quinoline-3-carboxylate; and an antimicrobial agent in a concentration below the MIC of the microbe to a patient in need thereof, wherein the efflux pump is a Mef A or Mef E pump.

398. (New) A method for treating a microbial infection comprising administering an effective amount of an efflux pump inhibitor compound selected from the group consisting of

(R)-(+)-Ethoxycarbonylmethyl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate;
 (S)-(-)-N-Methylpiperidin-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate; and
 (S)-(-)-N-Morpholinoethyl-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate; and an antimicrobial agent to a patient in need thereof, wherein the efflux pump is a NorA pump.

399. (New) A method for suppressing growth of microbe comprising administering an efflux pump inhibitor compound selected from the group consisting of

(R)-(+)-Ethoxycarbonylmethyl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate;
 (S)-(-)-N-Methylpiperidin-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate; and
 (S)-(-)-N-Morpholinoethyl-1-yl-9-fluoro-6,7-dihydro-8-(4'-hydroxypiperidin-1'-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylate; and an antimicrobial agent to a patient in need thereof, wherein the efflux pump is a NorA pump.

400. (New) A method for treating a microbial infection comprising administering an effective amount of an efflux pump inhibitor compound selected from the group consisting of

(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-L-alaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride;
(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-D-leucyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride and
(RS)-(\pm)-9-Fluoro-6,7-dihydro-8-(4'-D-phenylalaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride, and
an antimicrobial agent to a patient in need thereof, wherein the efflux pump is selected from the group consisting of MexAB-OprM, MexCD-OprJ, MexEF-OprM, and MexXY-OprM pumps.

401. (New) A method for suppressing growth of microbe comprising administering an efflux pump inhibitor compound selected from the group consisting of

(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-L-alaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride;
(S)-(-)-9-Fluoro-6,7-dihydro-8-(4'-D-leucyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride and
(RS)-(\pm)-9-Fluoro-6,7-dihydro-8-(4'-D-phenylalaninyloxy-piperidin-1-yl)-5-methyl-1-oxo-1H,5H-benzo[i,j]quinolizine-2-carboxylic acid hydrochloride and
an antimicrobial agent in a concentration below the MIC of the microbe to a patient in need thereof, wherein the efflux pump is selected from the group consisting of MexAB-OprM, MexCD-OprJ, MexEF-OprM and MexXY-OprM pumps.

402. (New) The method according to claim 375 wherein the efflux pump is selected from the group consisting of PmrA, QacA and QacB pumps.

403. (New) The method according to claim 378 wherein the efflux pump is selected from the group consisting of PmrA, QacA and QacB pumps.

404. (New) The method according to claim 375, wherein the efflux pump is selected from the group consisting of ARcrAB-TolC, AcrEF, MarA, SoxS, and Tet pumps.

405. (New) The method according to claim 378 wherein the efflux pump is selected from the group consisting of ARcrAB-TolC, AcrEF, MarA, SoxS, and Tet pumps.